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AMSAT NEWS SERVICE
ANS-152

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor(a)amsat.org

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http://www.amsat.org/mailman/listinfo/ans

In this edition:

* Temporary Rule Waivers Announced for 2020 ARRL Field Day
* IARU-R2 Workshop Videos Available
* Digital Mode Experiments Conducted on Linear Satellites
* SpaceX Launches Successfully Toward ISS
* Moonbounce Contact via FT8 Could be a First
* Mid-Altitude Balloon Race Planned for June 1
* ARISS News
* Upcoming Satellite Operations
* Hamfests, Conventions, Maker Faires, and Other Events
* Satellite Shorts From All Over

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ANS-152 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 152.01
>From AMSAT HQ KENSINGTON, MD.
DATE 2020 May 31
To All RADIO AMATEURS
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Temporary Rule Waivers Announced for 2020 ARRL/AMSAT Field Days

ARRL Programs and Services Committee (PSC) has adopted two temporary rule waivers for the 2020 ARRL Field Day to adjust for Covid-19 restrictions. An AMSAT parallel event is held at the same time, and the rules for that have been adjusted, as well.

ARRL Field Day is one of the biggest events on the amateur radio calendar, with over 36,000 participants in 2019, including entries from 3,113 radio clubs and emergency operations centers. In most years, Field Day is also the largest annual demonstration of ham radio, because many radio clubs organize their participation in public places such as parks and schools.

Due to the COVID-19 pandemic, many radio clubs have made decisions to cancel their group participation in ARRL Field Day this year due to public health recommendations and/or requirements, or to significantly modify their participation for safe social distancing practices. The temporary rule waivers allow greater flexibility in recognizing the value of individual and club participation regardless of entry class. The waivers may be found at: https://bit.ly/3de5AJt

The Radio Amateur Satellite Corporation (AMSAT) promotes its own version of Field Day for operation via the amateur satellites, held concurrently with the ARRL event. The rules for the AMSAT Field Day may be found at:
https://www.amsat.org/wordpress/wp-content/uploads/2020/05/2020fd.pdf

This will mean that there will be another group of certificates for AMSAT Field Day: The top three stations operating from home with commercial power.

The problem is with those operating from home attaching their scores to a club. Because AMSAT only allows one satellite station to be operating at a time, if you are going to attach your satellite contact to a club, only ONE home station can attach per club. This will keep the playing field rather equal as there are areas where there is only one satellite op around and other areas where there are dozens of satellite ops. It would be unfair for an area with a dozen satellite ops to pool all their home contacts towards one club.

Even if satellite operators took turns operating in shifts, it would make it very difficult to score entries correctly. That is why AMSAT has chosen to allow only one satellite home station could be attached to a single club. CLUB NAME MUST BE IDENTIFIED IN THE ENTRY.

There will also be no duplicate certificates. If you are attaching your score to a club, then it goes towards club rankings and not home rankings. Nothing needs to be changed on the submission form. If you are operating 1D and the name of your attached club is included, the club score will be calculated appropriately.

This is new and uncharted waters and hope everyone enjoys AMSAT Field Day. A much larger number of entries is anticipated with this change, so patience is appreciated.

(ANS thanks ARRL and Bruce Paige, KK5DO, AMSAT Director Contests and Awardsfor the above information)

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One week earlier, on 20 May, Matias LU9CBL and Guillermo OA4/XQ3SA hosted the Spanish-language version of this workshop, titled "Comunicaciones por Satelite 101". The video of their presentation is available at:
https://www.youtube.com/watch?v=69D1dJEfGDc

IARU-R2 plans more workshops covering other topics, in English and Spanish. Information on upcoming workshops is available at:
https://www.iaru-r2.org/en/news-and-events/workshops/

Videos of past workshops are available from the IARU-R2 Workshops channel on YouTube:
https://www.youtube.com/channel/UCnG2Srz0bsKmTbF2r3YNneQ

[ANS thanks Patrick Stoddard, WD9EWK/VA7EWK, for the above information]

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- Very little power is needed for QSOs throughout the duration of the pass, from AOS to LOS. W7QL set IC-9700 power to “zero” (roughly 500 milli-Watts, with over 3 dB cable/connector loss to a Leo-Pack antenna pair) and copied every packet on several satellites.

- FT-4 is very tolerant of voice signals which might drop on top of an ongoing FT-4 QSO. However, an FT-4 signal dropping in the middle of an SSB QSO would be quite annoying to the SSB operators.

- According to Joe Taylor, the occupied bandwidth of an FT-4 signal is 90 Hz. So theoretically over 200 such signals could be present on a 20 KHz channel. Obviously that will not, and should not happen. But a dozen closely spaced FT-4 QSOs at the bottom of the band, each running very low power should hardly be noticeable to current voice and CW traffic.

We invite other Satellite operators to join us in this expanded utilization of the linear satellite resources available to us. We recommend using FT-4 AT VERY LOW POWER, in the bottom few KHz of the downlink frequency range, with appropriate Doppler compensation, as described above. We hope to have a digital QSO with you sometime soon on the linear birds.

[ANS thanks Carlos Cardon, W7QL, for the above information]

SpaceX Launches Successfully Toward ISS

NASA astronauts Bob Behnken, KE5GGX, and Doug Hurley boarded a Crew Dragon spacecraft on top of a Falcon 9 rocket once again on Saturday, May 30. At 19:22 UTC they were successfully launched on their way to the International Space Station. This was the first launch of astronauts from U.S. territory since the final Space Shuttle flight in 2011 and the first launch of humans by a private contractor, SpaceX.

The first attempt for the launch, on Wednesday, May 27, scrubbed due to stormy weather near the Kennedy Space Center in Florida. The Crew Dragon spacecraft is scheduled to dock with the ISS about 19 hours after liftoff.

[ANS thanks Spaceflight Now for the above information]

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less sensitive than JT65, but with 15-second T/R [transmit/receive] sequences it's four times faster, and it doesn't use Deep Search," he said, answering his own question.

The FT8 protocol included in the beta version of WSJT-X has an optional user setting to work around the 2.5-second path delay. "For terrestrial use, the FT8 decoder searches over the range -2.5 to +2.4 seconds for clock offset DT between transmitting and receiving stations," Taylor explained. "DT" represents the difference between the transmission time and actual time. "When 'Decode after EME delay' is checked on the WSJT-X 'Settings' screen, the accessible DT range becomes -0.5 to +4.4 seconds. Just right for EME."

As Taylor explained in his post, FT8 uses 8-GFSK modulation with tones separated by 6.25 Hz. At the time of the contact, the expected Doppler spread on the W2HRO - PA2V EME path was 8 Hz, which would cause some additional loss in sensitivity. Despite the path losses, however, copy between W2HRO and PA2V was "solid in both directions," Taylor said.

Taylor said that when he was active in EME contests on 144 MHz, he was always frustrated that, even with reasonably strong signals, the maximum JT65 contact rate is about 12 per hour. "With FT8, you can do 40 per hour, as long as workable stations are available," he said.

As for using FT8 for EME contacts on 1296 MHz, Taylor said it "might sometimes work, but Doppler spread will probably make standard FT8 a problem." Given sufficient interest, however, he said the WSJT-X development team could design an FT8B or FT8C with wider tone spacing. He encouraged the use of FT8 for moonbounce on 144, 432, and 1296 MHz and asked users to report their results to the development team.

"A 'slow FT8' mode is indeed a sensitivity winner on suitable propagation paths," he said in a later Moon-Net post. "We are busy implementing such a mode, but with particular emphasis on its use on the LF and MF bands."

Taylor said FT8 has the operational advantage of putting all users in one (or a few) narrow spectral slices on each band. "So, it's easy to find QSO partners without skeds or chat rooms," he said. "Everything is done over the air, with no 'side channels' needed."

Taylor also remarked in response to posts from those who, like him, "love CW."

"I agree it's a thrill to hear your own lunar echo, and to make CW EME QSOs," he said. "Sometimes I pine for the bygone world of commercial sailing ships, which happen to be very much a part of my family's history," Taylor concluded. "But I know that technologies evolve, and the world does not stand still."

[ANS thanks ARRL News for the above information]

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Three Space Station Explorer teams will participate in anexciting distance learning—social distanced balloon race to beheld during the Pandemic.

ARISS educator, Joanne Michaelis, KM6BWB, is a science coach at the Wiseburn Unified School District in Los Angeles, California where she leads her students in several balloon launch attempts from the Los Angeles area each year. With this year different because of the pandemic, Joanne wanted to “shake things up a bit” and give students world-wide, a unique distance learning treat while keeping all safe during the pandemic. So Joanne challenged Ted Tagami, KK6UUQ, from Magnitude.io to a mid-altitude cross-continent balloon race and Ted accepted the challenge!

Ted plans to launch his balloon from Oakland, California. ISS Above inventor, Liam Kennedy, KN6EQU, from Pasadena, California, got “wind” of the idea and he asked to participate, too. All three organizations: ARISS, Magnitude.io and ISS Above are ISS National Lab Space Station Explorer (SSE) partners that work to inspire, engage, and educate students in Science Technology Engineering, Arts and Mathematics (STEAM) topics and to pursue STEAM careers.

The three SSE teams plan tolaunch their balloons simultaneously on June 1. The winner will be the first one to cross the“Finish Line”—the Eastern Time zone. Launch time is planned for 15:00 UTC (11:00 EDT, 10:00 CDT, 9:00 MDT, or 8:00 PDT. A live video feed of the launch is planned to start approximately 5 minutes prior to the event.

Once the balloons are airborne, students can track each balloon’s location, altitude, and temperature via amateur radio APRS (Automatic Packet Reporting System) which is fed automatically to the aprs.fi web site. Educators and parents around the globe can excite at-home youth withthis initiative. Students can tally and track the states each balloon travels through and plot altitude versus temperature, etc. Also, by researching weather patterns, students can make assumptions from their own data. This could include speed variations due to weather.

They also can predict each balloon’s flight path and when they might cross the finish line!

For more information on theballoon launch, lesson plans, and the livestream video link (when thelivestream URL is available), please go to: https://www.ariss.org/mid-altitude-balloon-race.html

Enjoy the Race! May the best ballooner win!!

[ANS thanks Charlie Sufana, AJ9N, one of the ARISS operation team mentors for the above information]

ARISS News

Amateurs and others around the world may listen in on contacts between amateurs operating in schools and allowing students to interact with astronauts and cosmonauts aboard the International Space Station. The downlink frequency on which to listen is 145.800 MHz worldwide.

ARISS is very aware of the impact that COVID-19 is having on schools and the public in general. As such, we may have last minute cancellations or postponements of school contacts. As always, ARISS will try to provide everyone with near-real-time updates at the ARISS webpage: https://www.ariss.org/

[ANS thanks Charlie Sufana, AJ9N, one of the ARISS operation team mentors for the above information]

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[ANS thanks Paul Overnfor, KE0PBR, AMSAT rover page manager, for the above information]

Hamfests, Conventions, Maker Faires, and Other Events

Want to see AMSAT in action or learn more about amateur radio in space? AMSAT Ambassadors provide presentations, demonstrate communicating through amateur satellites, and host information tables at club meetings, hamfests, conventions, maker faires, and other events.

Due to COVID-19, many hamfest and events around the United States have been cancelled or postponed. While we make every effort to ensure the information contained below is correct, there may be some that we missed. We wish all of you safekeeping and hope to be at a hamfest near you soon.

Current schedule:
    No scheduled events

The following events scheduled to have an AMSAT presence have been CANCELED:

    June 12-13, 2020, Ham-Com, Plano, TX

A copy of the AMSAT hamfest brochure is available for download from: https://bit.ly/2ygVFmV This color brochure is designed to be printed double-sided and folded into a tri-fold handout.

To include your upcoming AMSAT presentation and/or demonstration, please send an email to ambassadors (at) amsat (dot) org.

[ANS thanks Robert Bankston, KE4AL, AMSAT VP-User Services for the above information]

Satellite Shorts From All Over

+ @Virgin_Orbit tweeted on May 25 that its initial test flight of the LauncherOne rocket was "a major step forward," even though the craft did not achieve orbit as intended. In a follow-up tweet the next day, Virgin added "We said the main product of this flight would be data, and wow, did we get a lot of it! After diving into our early analyses, we wanted to share more about the flight – including both the many things that went well and what we know about the areas where we'll need to improve."
  (ANS thanks @Virgin_Orbit on Twitter for the above information)

+ Planning to build some space hardware in your basement during your Covid-19 quaranteen? Better get your handbook! A newly revised version of the NASA Systems Engineering Handbook can be downloaded at: https://www.nasa.gov/connect/ebooks/nasa-systems-engineering-handbook
  (ANS thanks The Orbital Index for the above information)

+ Russia plans to build a new space station because the current International Space Station will last only another decade at most, the head of the Russian space agency Roscosmos said in an interview published on Monday. "It's still unclear whether it (the new station) will be international or national," Roscosmos chief Dmitry Rogozin said in comments to the Russian newspaper Komsomolskaya Pravda.
  (ANS thanks n2yo.com for the above information)

+ Michael Wyrick, N3UC, has announced that AO-27 is now running on a

schedule that places the FM repeater on for 8 minutes per orbit:
4 minutes ascending pass and 4 minutes descending pass.
(ANS thanks Stephen DeVience, N8URE, for the above information)

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73 and Remember to help keep amateur radio in space,
This week's ANS Editor, Mark D. Johns, K0JM

k0jm at amsat dot org